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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/652,302	08/28/2000	Robert W. Mah	ARC-14231-2	2337

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NASA AMES RESEARCH CENTER  
ATTN: PATENT COUNSEL  
MAIL STOP 202A-3  
MOFFETT FIELD, CA 94035-1000

EXAMINER

MCCROSKY, DAVID J

ART UNIT PAPER NUMBER

3736

DATE MAILED: 02/01/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/652,302

Applicant(s)

MAH, ROBERT W.

Examiner

David J. McCrosky

Art Unit

3736

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5. 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Claim Objections***

Claims 1-16 are objected to because of the following informalities: if "OR( $\lambda$ ;meas)" in line 13 of claims 1 and 9 is meant to be an abbreviation for measured optical reflectance, then the entire abbreviation should read "(OR( $\lambda$ ;meas))"; "combines" in line 2 of claim 3 should read "combined". Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Ham et al. Ham et al disclose a fiber optic probe for spectroscopic analysis. See abstract and column 23, lines 43-65. The reference further teaches a neural network that compares sample data with a reference model. See column 8.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-5 and 9-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gevins in view of Ham et al. Gevins teaches a system and method that aligns MRI data with the data taken by an electrode or probe. See column 5, lines 51-56. Gevins further teaches 1) measuring the size and shape of the patient's head and 2) measuring

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the skull thickness using an ultrasonic probe. See columns 2 and 13. A neural network is used to process the information and compare shapes. See column 5, lines 8-20 and Figure 3. However, the neural network of Gevins does not contain training such that when a sample does not fall into the model it updates the model. Ham et al disclose a system and method that contains such a neural network. See column 8. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system and method of Gevins, by programming the neural network to update the model, in order to enhance the signal processing.

Referring to claims 3 and 11, Gevins discloses incorporating other characteristics such as eye and body movements, behavior and physiological data. See column 4, line 65 to column 5, line 3.

Claims 6 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gevins in view of Ham et al as applied to claims 1-5 and 9-13 above, and further in view of Tumer et al. Gevins and Ham et al disclose a system and method as recited in claims 1-5 and 9-13. The combination does not teach the use of a neural network that is a radial basis function neural network. However, Tumer et al teach an apparatus and method using a probe and a radial basis function neural network for fluorescence spectroscopy data analysis. See abstract. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination of Gevins and Ham et al by utilizing a radial basis neural network, as disclosed in Tumer et al, in order to further enhance classification accuracy.

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Claims 7, 8, 15 and 16 rejected under 35 U.S.C. 103(a) as being unpatentable over Gevins in view of Ham et al as applied to claims 1-5 and 9-13 above, and further in view of Panescu et al. Gevins and Ham et al disclose a system and method as recited in claims 1-5 and 9-13. The combination does not teach the use of a neural network that is a back-propagation model. Panescu et al teach a system and method using probes for locating and sensing an element in a body. See column 1. The system uses a back-propagation neural network to analyze data. See column 20, lines 11-21. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination of Gevins and Ham et al by utilizing a back-propagation neural network, as disclosed in Panescu et al, in order to further enhance classification accuracy.

Referring to claims 8 and 16, Panescu et al disclose a steering mechanism and locating probes. See column 23, lines 20-25 and column 24, lines 20-24.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Verrier et al disclose a system and method for prediction of cardiac death using a neural network and a Doppler probe. Ho et al disclose the use of probes with a neural network to map a tumor. Pologe et al disclose a neural network to analyze pulse oximeter data from an infrared probe.

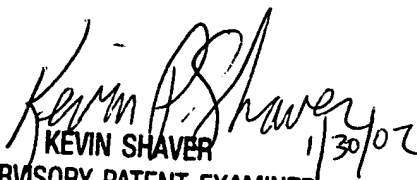
Any inquiry concerning this communication or earlier communications from the examiner should be directed to David J. McCrosky whose telephone number is 703-305-1331. The examiner can normally be reached on Mon-Fri 8:30-5:00.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eric Winakur can be reached on 703-308-3940. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-0758 for regular communications and 703-308-0758 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0858.

DJM  
January 25, 2002

  
KEVIN SHAVER 1/30/02  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 3700